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国際調査報告書

(54)Title: SEMICONDUCTOR SUBSTRATE AND ITS PRODUCTION METHOD, SEMICONDUCTOR DEVICE COMPRISING THE SAME AND ITS PRODUCTION METHOD

(54)発明の名称 半導体基板とその製造方法、及びそれを用いた半導体デバイスとその製造方法

(57) Abstract

A method for producing an SOI substrate having a monocrystalline oxide substrate or silicon substrate, an insulating underlying layer of an oxide deposited on the substrate, and a silicon layer epitaxially grown on the underlying layer comprises implanting ions into a first silicon layer epitaxially grown on an insulating underlying layer to turn the interface deep portion of the silicon layer amorphous, recrystallizing the amorphous interface deep portion by annealing, oxidizing part of the surface portion by heating, removing the silicon oxide layer by etching, growing a second silicon layer epitaxially on the remaining first silicon layer, implanting ions again into the silicon layer to turn the interface deep portion amorphous, and recrystallize the amorphous deep portion by annealing. Thus, an SOI substrate having a silicon layer of an extremely small crystal defect density and having a good surface planarity is produced. Therefore, a novel electronic or optical device having a high device performance and a high reliability is built on such a semiconductor substrate.

